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for deposit and an issuance number of an invalid bill, and transmits the numbers to a computer of a bank.

IN THE SPECIFICATION

Page 1, before the first line, add the paragraph:

a2

This is a continuation application of US Serial No. 09/686,961, filed October 12, 2000, which is a continuation application of US Serial No. 09/188,365, filed November 10, 1998 (now US Patent No. 6,155,484).

Page 1, the first full paragraph, lines 2-9, replace the paragraph with:

a3

The present invention relates to an electronic money card and an apparatus handling an electronic money card, and in particular, to an electronic money card of an electronic money type in which a token type and a value type are mixed , to an electronic money system handling the electronic money card, and to an apparatus for use with the electronic money card in the electronic money system.

Page 1, the second full paragraph, lines 10-18, replace the paragraph with:

a4

Attention has been recently attracted to electronic commerce (EC). In such commercial systems, an electronic

money system using an IC card is about to be put to practice in which electronic money can be used in a store existing on a network such as the Internet and an actual store. Electronic money systems using IC cards are classified into systems of "closed loop type" and "open loop type" on one hand and into those of "token type" and "value type" on the other hand.

Pages 1 and 2, the paragraph bridging these pages from page 1, line 19 to page 2, line 22, replace the paragraph with:

One of the problems associated with practical uses of such electronic money systems of the IC card type is prevention of money laundering for money illegally gained. ("Money laundering" is conducted so that any traces of the dubious money are erased and the money is beyond the reach of the police.) In the electronic money system of the closed loop type, when a transaction is achieved by a store and a financial institution or facility such as a bank with an electronic money card, personal transaction history recorded in the electronic money cards is transferred to a computer of the bank. Since personal information is accumulated in the bank, there exists a fear of invasion of privacy. Moreover, a large volume of transaction history is transmitted via terminal devices and automatic transaction machines of stores and a network to the computer of the bank, to be accumulated

as transaction history in a recording apparatus of the computer. Consequently, there arises a problem of increase in cost for communication, processing, and accumulation of information. In the electronic money system of the open loop type, the personal history is not acquired by the computer of the bank when a transaction is achieved by an electronic money card. Therefore, the invasion of privacy is prevented and the problems related to the communication, processing, and accumulation cost can be avoided. However, there also remains the problem of how to trace the electronic money transported for the money laundering.

Page 4, the first full paragraph, lines 3-25, replace the paragraph with:

In accordance with the present invention, there is provided an electronic money card of a token and value mixed type. In the electronic money card, there are stored issuance numbers of relatively large denomination bills and the balance of coins as a value amount. When the coin balance is equal to or more than the transaction amount, the coins are preferentially used for the payment. When the coin balance is insufficient, bills are used therefor. For a remaining amount of a transaction for which the coin balance and the bills are not appropriately used for the payment, a bill is changed into a value amount of coins and used for the payment.

Additionally, in accordance with the present invention, there is provided an electronic money transporting apparatus or transporter to handle the electronic money card of the token and value mixed type. From an electronic money card of a payer, the transporter receives an issuance number of a bill and/or a value amount of coins and then passes the number and the value amount to an electronic card of a recipient. The card of the recipient stores the received number in an internal storage thereof and adds the value amount of coins to the coin balance.

Pages 4 and 5, the paragraph bridging these pages from page 4, line 26 to page 5, line 17, replace the paragraph with:

Furthermore, when a bill is changed into a value amount of coins in an electronic card, the issuance number of the bill thus changed is recorded as an invalid bill in the electronic card. In this case, the invalid bill is also used as a clue or lead to trace the transported electronic money. In a transaction achieved by an electronic money card with a financial facility, an automatic transaction machine (ATM) receives a card identifier (ID) and an issuance number of the invalid bill from the electronic money card during a depositing or withdrawing operation and then transmits the card ID and the issuance number to a computer of the financial

a7 concl

facility. Particularly, in the money depositing operation, the ATM receives an issuance number of a bill deposited from the electronic money card and transmits the number to the computer. On receiving the issuance number of the deposited bill and the issuance number of the invalid bill, the ATM then stores the card ID and the received issuance numbers in a storage with a correspondence established therebetween.

Page 7, the first full paragraph, lines 1-7, replace the paragraph with:

a8

Fig. 2C is a flowchart showing a processing flow of an electronic money card 3 of a recipient and the money transporter 2 (after the flow of Fig. 2A) in the embodiment.

Fig. 3 is a flowchart showing a flow of processing in which an issuance number of a bill is transmitted to be accumulated in an electronic card/a computer 5 of a bank in the embodiment; and

Pages 7 and 8, the paragraph bridging these pages from page 7, line 16 to page 8, line 18, replace the paragraph with:

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Fig. 1 shows in a schematic diagram a data layout of an electronic money card and a flow of electronic money and data. Number 1 indicates an electronic money card of a payer. The card 1 includes a central processing unit (CPU), an

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input/output interface unit, and a memory as a data area. Stored in the data area are a card ID, an electronic money balance, a coin balance, bills, transaction history, and an invalid bill. The electronic money balance is obtained as a total of the coin balance and a balance of bills. For the bills, there are stored issuance numbers of all bills of the payer. Assume that the bills have only one face or denomination value, e.g., 10,000 yen. The transaction history includes transaction history of receipt and payment of money. In the history, a receipt/payment code represents a receipt/payment transaction. A transaction card ID indicates a card ID of an electronic money card of a partner of the transaction. A coin/bill code discriminates a receipt/payment transaction achieved by use of coins or bills. As to a value/issuance number, when the coin/bill code indicates "coin", the transaction amount is recorded in terms of a value amount, and when the coin/bill code indicates "bill", the transaction amount is recorded in terms of a bill issuance number. In a transaction history, records corresponding to histories are present by considering the information above as one record. Stored in the invalid bill field are a bill issuance number of each bill which has been changed into coins and thereby becomes invalid at this point of time.

Pages 8 and 9, the paragraph bridging these pages from page 8, line 19 to page 9, line 13, replace the paragraph with:

a10

Numeral 3 represents an electronic money card of a recipient. The card 3 is substantially equal to the card 1 of the payer in the hardware and software constitution, but only different in situation in the transaction. Numeral 2 denotes a money transporting apparatus or transporter such as a point-of-sale terminal device or unit, an electronic purse, or a server on a network. The transporter 2 includes a CPU, a memory, and an input/output interface. The transporter 2 communicates with the card 1 of the payer via the input/output interfaces thereof to receive information therefrom and store the information in its memory. Thereafter, the CPU of transporter 2 sends information from the memory to the card 3 of the recipient via the input/output interfaces thereof. Numeral 11 indicates a flow of electronic money from the card 1 of the payer to the card 3 of the recipient. Number 12 designates a flow of information which indicates the card ID of a partner of the transaction, recipient/payment code, and transaction amount communicated between the transporter 2 and the electronic money card 1 of a payer and the electronic money card 3 of a recipient, respectively.

Pages 9 and 10, the paragraph bridging these pages from page 9, line 14 to page 10, line 7, replace the paragraph with:

a11

Numeral 5 indicates a computer (or a file thereof) of a financial facility such as a bank. The card has a data layout equal to that of the card 1 of the payer from the card ID up to the transaction history. In an invalid bill field, there are recorded the respective IDs of the cards 1 and 3 and the issuance numbers of invalid bills. Numeral 4 indicates an automatic transaction apparatus (ATM) installed in a financial facility. In this concept of ATM, there is included a banking terminal unit on the Internet. The ATM includes a device to receive, as an input thereto, information from the cards 1 and 3. Numeral 14 indicates a flow of electronic money to indicate how the electronic money is transported between the cards 1 and 3 and the computer 5 of the financial facility. Numeral 13 denotes a flow of information to indicate how the card ID of a partner of the transaction, the bills deposited, and an invalid bill are transmitted from the cards 1 and 3 to the computer 5. When the financial facility adopts an outsourcing system in which the banking operations are to be carried out by a computer center of another firm, the computer 5 indicates a computer of the firm.

Page 10, the first full paragraph, lines 8-25, replace the paragraph with:

a12

Figs. 2A to 2C show in flowcharts a flow of processing in the card 1 of the payer, the money transporter 2, and the card 3 of the recipient. The transporter 2 transmits the obtained items including the card ID of the card 3, the receipt/payment code = payment code, and the transaction amount to the card 1 (step 21). The card 1 receives this information (step 22) and then refers to the electronic money balance and the coin balance in the data area (step 23). If the electronic money balance is less than the transaction amount (no in step 24), the card 1 notifies the condition of impossibility of payment to the transporter 2 (step 25). The transporter 2 responsively displays the impossibility of payment on its display device (step 26) and terminates the processing. If the electronic money balance is equal to or more than the transaction amount (yes in step 24), the card 1 checks to determine whether or not the coin balance is equal to or more than the transaction amount (step 27).

Pages 11 and 12, the paragraph bridging these pages from page 11, line 20 to page 12, line 20, replace the paragraph with:

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If the coin balance is less than the transaction amount (no in step 27), the transaction amount is divided by the face

a13 cancel

value of the bill. The quotient is set as the number of bills for the payment and the remainder is assumed as the transaction balance (step 34). When the number of bills is other than zero, the issuance numbers of the pertinent bills are acquired for the payment from the data area (step 35) to be notified to the transporter 2. Thereafter, the number of bills paid is deleted from the data area (step 36). The transporter 2 then receives the bills (issuance numbers; step 37) and then records the transaction history for each issuance number of bills, i.e., equal to the number of bills paid. The coin/bill code records the "bill code" and the value/issuance number records the issuance number of each bill paid (step 38). If the number of bills is zero, steps 35 to 38 are skipped. A check is then made to determine whether or not the coin balance is equal to or more than the transaction balance (step 39). If the coin balance is equal to or more than the transaction balance (yes in step 39), the process goes to step 29. However, when the transaction balance is zero, steps 30, 31, and 33 are skipped. If the coin balance is less than the transaction balance (no in step 39), the process goes to processing of step 41 (Fig. 2B) to change the bill into coins. When the number of bills is zero, the result of step 39 usually becomes "no", since the result of determination of step 39 is the same as that of step 27.

Pages 12 and 13, the paragraph bridging these pages from page 12, line 21 to page 13, line 5, replace the paragraph with:

a14

In Fig. 2B, the card 1 of the payer adds the bill amount to the coin balance to create the (new) coin balance. The obtained balance is written in the data area for the update thereof (step 41) and then one bill (issuance number) is obtained from the data area (step 42). Subsequently, the bill (issuance number) is additionally registered in the invalid bill field of the data area (step 43). The issuance number of the bill taken out is deleted from the data area (step 44) and then the process goes to step 29. Although step 42 is to be executed before steps 43 and 44, the position thereof in the program may be changed only if this condition is satisfied.

Pages 13 and 14, the paragraph bridging these pages from page 13, line 6 to page 14, line 10, replace the paragraph with:

a15

In Fig. 2C, the transporter 2 checks to determine whether or not the transaction amount is equal to the total amount of the coins and bills received from card 1 of the payer (step 51). If these amounts match each other, the transporter 2 sends the card ID of the card 1, the receipt/payment code (= receipt code), and the transaction amount to the card 3 of the recipient (step 52). On receiving these items (step 53), the

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card 3 refers to the electronic money balance and the coin balance in the data area (step 54). In the payment of electronic money, when the bills (issuance numbers of the bills for payment) and/or coins (the value amount) are sent from the transporter 2 (step 55), the card 3 receives the electronic money (step 56). If there exist coins, the card 3 adds the value amount received to the coin balance to generate the (new) coin balance. The new coin balance is written in the data area to thereby update the data area (step 57) and then one record of transaction history is written in the area (step 58). In the transaction history, the receipt/payment code is set to "receipt code", the transaction ID is "card ID received from the transporter 2", the coin/bill code is set to "coin code", and the value amount/issuance number field includes the received value amount. Next, if there exists a bill, the issuance numbers of the bills received are registered to the data area (step 59). For each issuance number of a bill, one record is written as transaction history in the area (step 60). Finally, the transaction amount is added to the electronic money balance to create the (new) electric money balance. The resultant balance is written in the data area for the update thereof (step 61) and then the processing is terminated. Steps 57 to 60 may be executed in any sequence.

Page 14, the first full paragraph, lines 11-17, replace the paragraph with:

a16

As described above, the electronic money card 1 of the payer automatically selects a combination of "coins" and "bills" in accordance with the amount of payment to execute a procedure for payment. However, it is unnecessary for the user to pay attention to the combination of "coins" and "bills" selected for the payment.

Pages 15 and 16, the paragraph bridging these pages from page 15, line 18 to page 16, line 1, replace the paragraph with:

a17

Fig. 4 shows in a flowchart a flow of processing to trace money that has been laundered. In accordance with an objective issuance number of bill, the computer of the bank retrieves the transaction history and an invalid bill in the external storage (step 81). When a bill having the issuance number is detected (yes in step 82), the transaction card ID is displayed on the display unit (step 83). Using as a clue the possessor of the card ID, the police can check the transaction history in the data area of each money card to thereby find suspected laundered money in accordance with the final card ID thus retrieved.